

HIGH ENERGY ARBITRARY WAVEFORM SOURCE

ABSTRACT OF THE DISCLOSURE

A high-energy optical beam generator providing a desired output waveform. The generator includes a master oscillator, such as a mode-locked laser, to generate an input beam, a first dispersive element to decompose the input beam into frequency components, a set of phase and amplitude modulators to modulate the frequency components individually, a set of power amplifiers to amplify the frequency components individually, and a second dispersive element to recombine the amplified and modulated frequency components into a single output beam. Phase control electronics control the modulators to provide the desired waveform for the output beam, based on its intended application and on sensed characteristics of the input beam and the output beam.